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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/670,212

09/26/2003

Kimio Nakayama

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12/26/2008

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EXAMINER

MATZEK, MATTHEW D

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

12/26/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/670,212 | Applicant(s) NAKAYAMA ET AL. | |
| | Examiner MATTHEW D. MATZEK | Art Unit 1794 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,6-15 and 17-24 is/are pending in the application.
- 4a) Of the above claim(s) 13-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-12 and 17-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/08</u> | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. The amendment dated 9/15/2008 has been fully considered and entered into the Record. New claim 24 has been added. Claims 1, 2, 4, 6-15 and 17-24 are currently pending, but claims 13-15 have been withdrawn from consideration. Claims 1, 2, 4-12 and 17-24 remain active. Claim 1 has been amended to now require polyurethane obtained from a diisocyanate component, polyol component, chain extender and optionally a crosslinking agent wherein the diisocyanate component is an aliphatic or alicyclic diisocyanate and containing less than 10% by mass of an aromatic diisocyanate. The previous rejections based upon the combination of Takeyama et al., Ashida et al., Mast and Dieterich have been withdrawn due to the new limitation of amended claim 1.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 2, 4, 6-8 and 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeyama et al. (US 6,299,977) in view of Ashida et al. (JP 09059881) and Mast (US 4,914,764).

a. Takeyama et al. teach an artificial leather (Abstract), nonwoven fabric, comprising fiber bundles having a single fineness of no greater than 0.2 denier (0.222 dtex) (col. 3, lines 15-18). The nonwoven fabric is impregnated with polyurethane elastomer comprising a diisocyanate component (Applicant's polymer A with diisocyanate component) (col. 8, lines 25-43). Examiner equates the applied nonwoven fabric to the three-dimensional entangled body of Applicant. The polymer is

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impregnated in the range of 15-80% of the weight of the nonwoven fabric (col. 9, lines 10-14). This anticipates the ratio of the elastomeric polymer A to the three-dimensional entangled body in the limitation of claim 1. The surface of the artificial leather may contain naps of 40-300 microns, which anticipates the instantly claimed nap lengths (col. 11, lines 5-8). Example 2 is dyed via three different dyes, but Takeyama is silent as to the use of pigments and their quantities for use in coloring the artificial leather article.

b. The polyurethane of Takeyama et al. is obtained from the reaction of dicyclohexylmethane diisocyanate, a diisocyanate component, (col. 8, lines 25-47) ethylene glycol, a polymeric polyol component, (example 1) and a chain extender, hydrazine. The reference teaches the generic genus, dicyclohexylmethane diisocyanate and as such it would have been obvious to have selected a specific specie of the genus (i.e. 4,4' dicyclohexylmethane diisocyanate) since the reference uses the isocyanate in the claimed manner. Furthermore, since the ethylene glycol in Takeyama et al. is used to react with the isocyanate to form polyurethane in the claimed manner it would have been obvious to have used polyethylene glycol instead of ethylene glycol because they are obvious variants of same compound. Dicyclohexylmethane diisocyanate is an alicyclic diisocyanate and the applied reference teaches the use of one diisocyanate component. Therefore, there would be no aromatic diisocyanate in the polyurethane formed by the applied reference.

c. Applicant claims a water-dispersed polyurethane substantially free from organic solvents. The polyurethane of Takeyama et al. uses either an organic solvent or an aqueous dispersion comprising a mixture of organic solvent and water (col. 8, lines 47-

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65). Examiner is taking the position that the limitation of the polyurethane being formed in a water-dispersion without any organic solvent is merely a process limitation and the use of organic solvent would not adversely affect the final polyurethane or the artificial leather formed from said polyurethane. Examiner and Applicant have previously discussed this matter. In previous remarks, Applicant has stated that it is well known that organic solvent based polyurethanes coagulate into a porous state, and since light is diffused randomly on a porous surface, the polyurethane is opaque. Said opaque polyurethane can only be made transparent by using a water dispersion, free of organic solvent. Examiner has consulted other sources, more experienced in the art of polymers, and has learned that the type of solvent used would not affect the final polyurethane as long as the same reactants are used in each case and the polymer is sufficiently dried. If Applicant has used a more specific combination of reactants than what is currently claimed that may help to distinguish the claimed invention from that of the applied art. In summary, Examiner's position is that regardless of the solvent, as long as the resin is adequately dried, it would form the same polyurethane with the same properties. Applicant is invited to demonstrate how using the claimed diisocyanate, polymeric polyol, and chain extender would form a porous, opaque polyurethane using an organic solvent, but a transparent, non-porous polyurethane would be formed by using water. Takeyama et al. fail to teach the use pigments and their quantities in coloring artificial leather.

d. Ashida et al. teach the creation of suede-tone artificial leather comprising fiber bundles containing a black pigment reflecting infrared rays. The fiber bundles are made

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of conjugate ultra-fine polyethylene or nylon fibers containing perylene black (an organic black pigment) in an amount of greater than or equal to 5 percent [structure, page 2]. A nonwoven web of the fiber bundles is impregnated with a polyurethane ratio of 70:30. The impregnant may contain pigments, such as carbon black, at levels ranging from 0.1 to 5 weight percent.

e. Since Ashida et al. and Takeyama et al. are from the same field of endeavor (i.e. artificial leather), the purpose disclosed by Ashida et al. would have been recognized in the pertinent art of Takeyama et al.

f. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have made the article of Takeyama et al. with the fiber pigments and percentages disclosed by Ashida et al. The skilled artisan would have been motivated by the desire to create an article that is capable of reflecting infrared rays (Abstract, Ashida et al.).

g. Mast et al. teach a bath pigmentation process to improve the light fastness of leather (Abstract). The pigments available for use include insoluble azo pigments (col. 2, lines 39-46), carbon black (col. 1, lines 8-17) and inorganic pigments. Mast et al. provide seven different pigment mixtures that consist of multiple pigments (col. 8, line 46-col. 9, line 8). The claimed particle sizes are provided for in the abstract. Water-based polyurethanes may be used for pre-fixation to assist in fixing the pigments into the leather (col. 3, lines 14-28).

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h. Since Mast et al. and Takeyama et al. are from the same field of endeavor (i.e. colored leathers), the purpose disclosed by Mast et al. would have been recognized in the pertinent art of Takeyama et al.

i. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have made the article of Takeyama et al. with the pigments of Mast et al. motivated by the desire to obtain pigment penetration of the leather and improved light fastness (abstract).

j. With regards claims 1, 6 and 8, although the applied references do not explicitly teach the instantly claimed feature of the polyurethane's swelling rate or its color fastness, it is reasonable to presume that said property is inherent to combined applied article. Support for said presumption is found in the use of like materials (i.e. alicyclic diisocyanate polyurethane). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties of the polyurethane's swelling rate or its color fastness would obviously have been present one the combined product is provided. Reliance upon inherency is not improper even though rejection is based on Section 103 instead of Section 102. *In re Skoner, et al.* (CCPA) 186 USPQ 80.

k. Claim 7 is rejected as the size of the elastomeric polymer a particle cannot serve as a further limitation in the instantly claimed article as the elastomer melts and impregnates the nonwoven fabric and therefore loses its particle form in the fabricated article.

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- l. Claims 17-20 are rejected as the relative amount of carbon black is a result-effective variable affecting the blackness of the fibers [0008, page 7]. Consequently, absent a clear and convincing showing of unexpected results demonstrating the criticality of the claimed ratio, it would have been obvious to one of ordinary skill in the art to optimize this result-effective variable by routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).
- m. The disclosure of Ashida et al. is silent as to the size of the pigment particles. It is well known in the art of leather/artificial leather pigmentation that the particle sizes are within the instantly claimed ranges. Mast et al. demonstrate this, which teaches that pigments for the use of coloring leather are from 0.050 to 0.5 microns (Abstract). The reference explicitly mentions carbon black and azo pigments (col. 1, lines 8-12 and col. 2, lines 39-43).
- n. Claims 21 and 22 are rejected as it would have been obvious to one of ordinary skill in the art at the time the invention was made to have impregnated the pigmented elastomer into the three-dimensional entangled body at either with or without a gradient in the thickness direction. The skilled artisan would have been motivated by the desire to create an article with varied aesthetics.
3. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeyama et al. (US 6,299,977) in view of Ashida et al. (JP 09059881) and Mast (US 4,914,764) as applied to claim 1 above, and further in view of Higuchi et al. (4, 525,169).

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- a. The Takeyama et al., Ashida et al. and Mast et al. references fail to teach the use of a pigmented coating layer or the lamination of another layer to the artificial leather article.
- b. Higuchi et al. teach artificial grain leather having different color spot groups comprised of ultra fine fibers, in which at least one side of the fibrous substrate has two types of colors provided in a coating layer (Abstract). As demonstrated in Example 1 (col. 8, lines 58-61 and col. 9, lines 28-33) polyurethane with imbedded pigment may be used to impregnate the artificial leather at a level of 0.5 percent. Resins for use in the coating layer comprise polyurethane (polymer A), polyacrylic acid (polymer B), and polyvinyl chloride (polymer C) (col. 5, lines 43-49). The colored coating layer is made of a coating composition in which resins are mixed with pigments. The pigments should not make up more than 30% by weight of the coating (col. 5, lines 59-64). As the pigments are to make up 30% or less of the weight of the coating of the article of Higuchi et al., the pigments of the coating and impregnant together, necessarily meet the compositional limitations instantly claimed by Applicant. Example 3 teaches the use of carbon black (Pigment A), insoluble azo and disazo condensation pigments (Pigments B and C) in a polyurethane vehicle for the coating film layer and a multitude of dyes for the creation of a dyed fabric.
- c. Since Takeyama et al. and Higuchi et al. are from the same field of endeavor (i.e. artificial leather), the purpose disclosed by Higuchi et al. would have been recognized in the pertinent art of Takeyama et al.

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d. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to add pigments to the elastomer of Takeyama et al. motivated by the desire to create an artificial grain leather presenting an entirely new tint with quality appearance and having different color spot groups, which cannot be attained by natural leather (col. 1, lines 56-60).

e. Claim 9 is rejected as Higuchi et al. teach the use of pigments in the coating layer (col. 5, lines 59-64) and Takeyama et al. teach the addition of a surface layer comprising elastomeric polymer, which is either the same kind or different kind from the impregnation polymer on the base material (nonwoven, napped fabric) (col. 21, lines 13-18). This results in a grained surface (col. 21, lines 13-15) rejecting claim 12. Claim 11 is rejected as Figure 3 illustrates a discontinuous surface coating resulting in a semi-grained article. Claim 10 is rejected as Higuchi et al. teach that the artificial leather article may be made of a laminate comprising woven, nonwoven and knitted fabrics (Claim 8).

Response to Arguments

4. Applicant's arguments with respect to claims 1, 2, 4, 6-12 and 17-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571.272.1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/
Examiner, Art Unit 1794

/Ula C Ruddock/
Primary Examiner, Art Unit 1794

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